

# GN04073N

## GaAs N-Channel IC

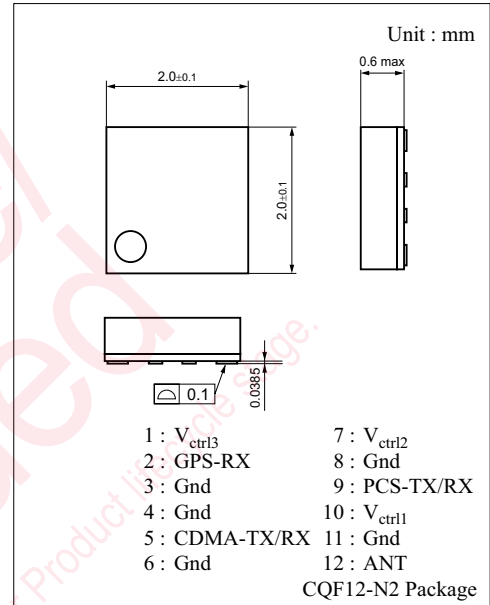
High handling power SP3T SW-IC for tripleband mobile phone  
The terminal for CDMA/PCS/GPS

### ■ Features

- Low insertion LOSS: 0.35 dB
- Cross modulation: -120 dBm / 1.2 MHz
- Ultra small package (2.0 mm × 2.0 mm × 0.6 mm)

### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Power dissipation	$P_D$	150	mW
Control voltage	$V_{\text{ctrl(H)}} - V_{\text{ctrl(L)}}$	+5	V
Maximum control voltage	$V_{\text{ctrl(H)max}}$	+5	V
Minimum control voltage	$V_{\text{ctrl(L)min}}$	-1	V
Maximum input power	$P_{\text{IN}}$	35	dBm
Operating ambient temperature	$T_{\text{opr}}$	-30 to +90	$^\circ\text{C}$
Storage temperature	$T_{\text{stg}}$	-40 to +120	$^\circ\text{C}$



### ■ Electrical Characteristics

- CDMA ( $V_{\text{ctrl(L)}} = 0\text{ V}$ ,  $V_{\text{ctrl(H)}} = 3.0\text{ V}$ ,  $f = 824\text{ MHz to } 894\text{ MHz}$ ,  $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$ )

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Insertion loss	LOSS	ANT - CDMA_TX/RX ( $P_{\text{IN}} = 26.0\text{ dBm}$ )		0.35	0.50	dB
Isolation	ISO	ANT - GPS_RX ( $P_{\text{IN}} = 26.0\text{ dBm}$ ) (Correspond of ANT - CDMA_TX/RX ON)	25.0	28.8		dB
		ANT - PCS_TX/RX ( $P_{\text{IN}} = 26.0\text{ dBm}$ ) (Correspond of ANT - CDMA_TX/RX ON)	27.0	30.0		
Voltage standing wave ratio *	VSWR	ANT - CDMA_TX/RX		1.12	1.30	—
Input 0.1 dB compression	$P_{\text{IN}(0.1\text{ dB})}$	ANT - CDMA_TX/RX	30.0	33.0		dBm
2nd harmonics *	$2f_0$	ANT - CDMA_TX/RX ( $P_{\text{IN}} = 26.0\text{ dBm}$ )		-85	-65	dBc
3rd harmonics *	$3f_0$	Non-modulation signal		-93	-68	dBc
3rd order input intercept point *	IIP3	ANT - CDMA_TX/RX ( $P_{\text{IN}} = 26.0\text{ dBm}$ )	60.0	67.1		dBm
Cross modulation *	X-MOD	ANT - CDMA_TX/RX $f_{\text{IN1}} = 836\text{ MHz}$ , $P_{\text{IN1}} = 26.0\text{ dBm}$ $f_{\text{IN1}} = 881.9\text{ MHz}$ , $P_{\text{IN2}} = -22\text{ dBm}$		-120	-105	dBm/ 1.2 MHz
Control current	$I_{\text{ctrl}}$	ANT - CDMA_TX/RX		1.0	9.0	$\mu\text{A}$

Note) \*: Designed specification

### ■ Electrical Characteristics (Continued)

- PCS ( $V_{ctrl(L)} = 0\text{ V}$ ,  $V_{ctrl(H)} = 3.0\text{ V}$ ,  $f = 1\,850\text{ MHz}$  to  $1\,990\text{ MHz}$ ,  $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$ )

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Insertion loss	LOSS	ANT - PCS_TX/RX ( $P_{IN} = 24.0\text{ dBm}$ )		0.38	0.55	dB
Isolation	ISO	ANT - CDMA_TX/RX ( $P_{IN} = 24.0\text{ dBm}$ ) (Correspond of ANT - PCS_TX/RX ON)	19.0	22.0		dB
		ANT - GPS_RX ( $P_{IN} = 24.0\text{ dBm}$ ) (Correspond of ANT - PCS_TX/RX ON)	19.0	22.0		
Voltage standing wave ratio *	VSWR	ANT - PCS_TX/RX		1.06	1.30	—
Input 0.1 dB compression	$P_{IN(0.1\text{ dB})}$		30.0	33.0		dBm
2nd harmonics *	$2f_O$	ANT - PCS_TX/RX ( $P_{IN} = 24.0\text{ dBm}$ )		-90	-65	dBc
3rd harmonics *	$3f_O$	Non-modulation signal		-84	-74	dBc
3rd order input intercept point *	IIP3	ANT - PCS_TX/RX ( $P_{IN} = 24.0\text{ dBm}$ )	60.0	66.4		dBm
Cross modulation *	X-MOD	ANT - PCS_TX/RX $f_{IN1} = 1\,880\text{ MHz}$ , $P_{IN1} = 24.0\text{ dBm}$ $f_{IN1} = 1\,961.25\text{ MHz}$ , $P_{IN2} = -22\text{ dBm}$		-121	-110	dBm/ 1.2 MHz
Control current	$I_{ctrl}$	ANT - PCS_TX/RX		1.00	9.00	$\mu\text{A}$

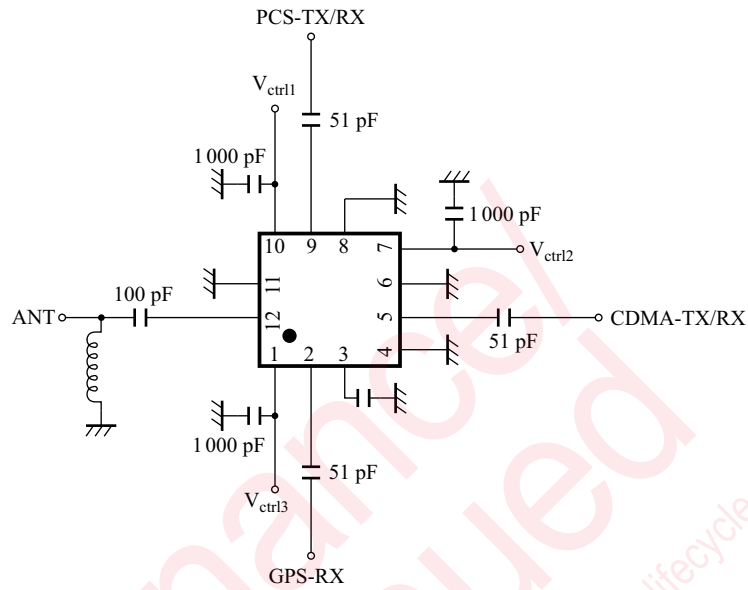
Note) \*: Designed specification

- GPS ( $V_{ctrl(L)} = 0\text{ V}$ ,  $V_{ctrl(H)} = 3.0\text{ V}$ ,  $f = 1\,574\text{ MHz}$  to  $1\,577\text{ MHz}$ ,  $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$ )

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Insertion loss	LOSS	ANT - GPS_RX ( $P_{IN} = 10.0\text{ dBm}$ )		0.33	0.50	dB
Isolation	ISO	ANT - CDMA_TX/RX ( $P_{IN} = 10.0\text{ dBm}$ ) (Correspond of ANT - GPS_RX ON)	21.0	24.3		dB
		ANT - PCS_TX/RX ( $P_{IN} = 10.0\text{ dBm}$ ) (Correspond of ANT - GPS_RX ON)	22.0	25.4		
Voltage standing wave ratio *	VSWR	ANT - GPS_RX		1.10	1.30	—
Control current	$I_{ctrl}$		0.70	9.00		$\mu\text{A}$

Note) \*: Designed specification

■ Test Circuit



■ Logic Table

ON Course	V <sub>ctrl1</sub>	V <sub>ctrl2</sub>	V <sub>ctrl3</sub>
ANT - CDMA_TX/RX	L	H	L
ANT - PCS_TX/RX	H	L	L
ANT - GPS_RX	L	L	H

# Caution for Safety

 **DANGER**

## ■ This product contains Gallium Arsenide (GaAs).

GaAs powder and vapor are hazardous to human health if inhaled or ingested. Do not burn, destroy, cut, cleave off, or chemically dissolve the product. Follow related laws and ordinances for disposal. The product should be excluded from general industrial waste or household garbage.

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